

Memorandum

Date: July 20, 2007

To: Ivan Paulsen
Department of Fish and Game
Post Office Box 1858
Portola, California 96122

From: Department of Water Resources

Subject: Lake Davis Creel Census-2001

Introduction

This memorandum summarizes and documents a survey of fishing at Lake Davis, Plumas County, conducted cooperatively by the Department of Fish and Game and the Department of Water Resources during 2001.

DFG's survey was intended to monitor angling use and catch following an unsuccessful treatment to eradicate northern pike in 1997 and the pike's subsequent rediscovery in the lake in 1999. DWR's effort was intended to support DFG and was conducted concurrently with a survey of recreation and fishing use on lower Big Grizzly Creek (Nicholas, 2002). An unintended benefit provided by these surveys was a unique opportunity to compare data obtained by each agency and to combine use count and creel census information to provide more accurate estimates of angling use and catch.

Methods

While the DFG and DWR surveys were generally similar in most respects and both included counts of boat trailers and vehicles at major boat ramps and roving surveys of boat and shore anglers, they also differed in several important details. Both agencies counted boat trailers and vehicles at Honker, Mallard, and Lightning Tree boat ramps, but DFG did not count trailers and vehicles at Camp 5 boat ramp while DWR did not make counts at Coot Bay. The DFG surveys included counts of shore anglers near the ramp areas while the DWR surveys did not. DFG measured total length of trout to the nearest 1 mm, while DWR measured fork length to the nearest 0.5 cm (5 mm). DWR recorded the terminal gear (bait, lure, or fly) used by anglers, but DFG did not. DWR recorded angler residence to zip code while DFG recorded only the state of angler residence. DFG recorded the specific location of each interview, while DWR did not.

DFG Scientific Aid Terry Banka, assisted by Scientific Aids Laura Wooden and Darin Olsen, surveyed 1,081 anglers at various locations around Lake Davis (see USFS description and map of the Lake Davis Recreation Area). They censused on 18 days of the 202-day Sierra Trout Season, April 28 to November 15 (Table 1). Although Lake Davis can be legally fished all year, angling use in winter and early spring is greatly reduced by inclement weather and ice and snow conditions on and around the lake.

DWR student assistant Jake Nicholas assisted by Student Assistant John Campbell interviewed 593 anglers on 28 days during the same 202-day period. Because DWR was also surveying recreation on lower Big Grizzly Creek, they spent much less time at the lake, resulting in fewer interviews on each survey day than DFG collected.

Although the survey schedules were not coordinated, the two agencies generally surveyed the lake on different dates (Table 2). Both agencies were at the lake together on only three survey dates (April 29, July 4, and August 5).

Creel Census Results

During the survey period, DFG interviewed 1,081 anglers who had fished 4,014.5 hours with an observed catch (fish kept) of 748 rainbow trout and one brown trout (0.19 trout per hour). In addition, 343 rainbow trout and one brown trout were reported to have been caught and released (Table 3). No northern pike were observed in the census. Boat anglers totaled 452 and fished 2,112.75 hours with a recorded catch of 444 rainbow trout (0.21 trout per hour). Boat anglers reported catching and releasing an additional 265 rainbow trout and one brown trout. Shore anglers totaled 627 and fished 1,894 hours with a recorded catch of 304 rainbow trout and one brown trout (0.16 trout per hour). They also reported catching and releasing 66 additional rainbow trout. Two float tube anglers were censused and had fished a total of 7.75 hours. They reported catching and releasing 12 rainbow trout.

DWR interviewed 593 anglers who had fished 1,885 hours, with an observed catch of 388 rainbow trout, 4 brown trout, and 4 brown bullhead. In addition, 150 trout were reported caught and released. No northern pike were observed. DWR surveyed 192 boat anglers who had fished 730 hours and caught 165 rainbow trout and 4 brown trout (0.23 trout per hour). They reported catching and releasing 91 rainbow trout and 1 brown bullhead. Shore anglers totaled 401 who had fished 1,155 hours and caught 223 rainbow trout (0.19 trout per hour) and 4 brown bullhead. They reported catching and releasing an additional 59 rainbow trout.

The combined data from these surveys provide a large database of census information totaling 1,674 anglers and nearly 5,900 hours of fishing on 43 days of the 2001 season.

About 56 percent of the anglers DFG censused at Lake Davis in 2001 lived in California and 44 percent were from Nevada. About 61 percent of the anglers DWR

Lake Davis Recreation Area

Beckwourth Ranger District

Lake Davis is located seven miles north of Portola, California. This lake was created in 1967 for recreational opportunities. The Lake Davis Recreation Area offers a wide variety of summer outdoor experiences including: camping, picnicking, fishing, hunting, boating, mountain biking, swimming and wildlife viewing. Water-skiing and jet skis are not permitted. Frequent strong winds can cause the lake to become very hazardous for small craft. In the winter, ice fishing, snowmobiling and cross-country skiing are favored activities.



Camping

A concessionaire manages three campgrounds around Lake Davis. Grizzly, Grasshopper Flat and Lightning Tree Campgrounds have approximately 144 family camping sites, 21 double sites and 1 group site. Campsites may be reserved through Reserve USA (1-877-444-6777 or on-line at www.ReserveUSA.com).

Grizzly and Grasshopper Campgrounds have piped water and flush toilets. Coin-operated showers are available at Honker Cove Boat Ramp. Trailers of up to 35 feet can be accommodated. No hookups are provided. Facilities are usually open from late April through late October. Lightning Tree Campground has vault toilets and is open year-round except when closed by snow.



Fishing

There are twelve fishing accesses on Lake Davis. Some have toilets and picnic tables are available at Coot Bay Fishing Access. Fishing is regulated by the California Department of Fish and Game with a five trout limit and tributary restrictions. If any of the invasive species Northern Pike are caught immediately cut off its head. Below Lake Davis, almost three miles of Big Grizzly Creek is open to fishing for day use on a public access strip. Native and stocked trout occur in the lake.

Varieties include Rainbow, German Brown and Eagle Lake Trout as well as Largemouth Bass and Brown Bullhead.



Boat Launching

Camp Five, Honker Cove, Mallard Cove, and Lightning Tree Boat Ramps all have paved launching ramps, floating boat docks, toilets and paved parking lots. Camp Five Boat Ramp also has a universally accessible Fishing Levee 100 feet long for deeper water fishing.



Hunting

Mule deer, black-tailed deer, waterfowl, quail, and some small game may be hunted in-season in the Lake Davis Recreation Area. The California Department of Fish and Game regulates hunting seasons and permits. Discharging a firearm within 150 yards of a campsite, across or on a Forest road or body of water is prohibited.



Area Interests

Smith Peak Lookout, located about seven miles southwest of the dam, provides a good view of the lake and an opportunity to learn about the job of a fire lookout. It is operated full time during fire season and visitors are welcome. Lake Davis is also home to several interesting species of birds. Eagles and osprey can be seen at different times of the year, as well as hawks and owls.



Supplies

Supplies can be purchased in the town of Portola, seven miles south of Lake Davis.



Drinking Water

Only water from developed recreation sites is maintained for safe drinking. Open water sources are easily contaminated by human or animal waste. Water from springs, lakes, and streams should be properly treated before drinking.



United States
Department of
Agriculture



Forest Service
Pacific Southwest Region
Plumas National Forest
www.fs.fed.us/r5/plumas

Beckwourth Ranger District
Box 7, Blairsden, Ca. 96103
Phone: (530) 836-2575
Revised 05/15/06

Lake Davis Recreation Area Plumas National Forest

In Case of Emergency
Fire / Medical / Sheriff:
Call 911

A pay telephone is located in
Grasshopper Flat Campground

USDA Forest Service
Beckwourth Ranger District
For more information, call
Beckwourth Ranger District
(530) 836-2575

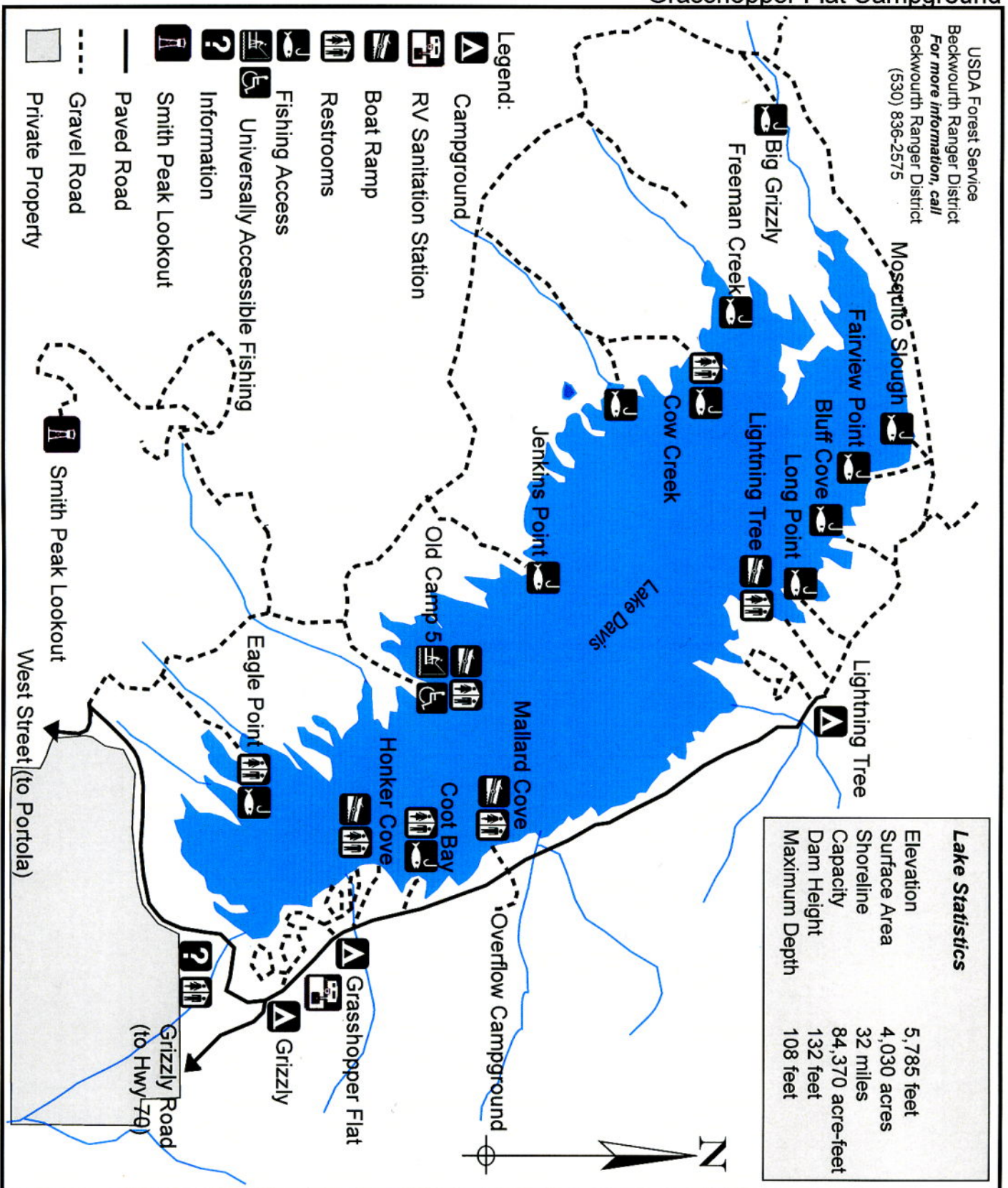


TABLE 1. 2001 RECREATION SEASON STRATA AT LAKE DAVIS - DFG AND DWR CENSUS EFFORTS						
STRATA	PORTION OF ANGLING SEASON	DAYS IN STRATUM	ANGLERS INTERVIEWED		DAYS SURVEYED	
			DFG	DWR	DFG	DWR
I	April 28-29 (Opening Weekend)	2	97	22	1	2
II	May 26-28 (Memorial Day Weekend)	3	166	87	1	2
III	May - June Weekends	15	364	103	3	4
IV	May - June Weekdays	44	83	72	4	4
V	July - August Weekends	17	181	111	4	4
VI	July - August Weekdays	44	36	42	1	4
VII	September-October-November WE	20	17	66	1	3
VIII	September-October-November WD	53	28	27	1	3
IX	July 4 and Labor Day Weekend	4	109	63	2	2
	Totals for Season	202	1081	593	18	28
	DFG Census Clerks:			DWR Census Clerks:		
	Terry Banka - 16 days			Jake Nicholas - 23		
	Banka/Laura Wooden - 1 day			Nicholas/Campbell - 3		
	Darin Olsen - 1 day			John Campbell - 2		

TABLE 2. DATES SURVEYED AT LAKE DAVIS BY DFG AND DWR IN 2001

STRATA	DATE	DWR SURVEYOR	DFG SURVEYOR
I	April 28	Nicholas/Campbell	
I	April 29	Nicholas/Campbell	Banka
II	May 26	Nicholas/Campbell	
II	May 27	Nicholas	
II	May 28		Banka
III	May 12	Nicholas	
III	May 13	Nicholas	
III	May 19		Banka
III	June 9		Banka
III	June 16	Nicholas	
III	June 24	Nicholas	
III	June 30		Banka
IV	April 30		Banka
IV	May 10	Campbell	
IV	May 22		Banka
IV	May 25	Nicholas	
IV	May 26		Banka
IV	June 14	Nicholas	
IV	June 18		Banka
IV	June 20	Nicholas	
V	July 8	Nicholas	
V	July 14	Nicholas	
V	July 22		Banka
V	August 3		Banka
V	August 5	Nicholas	Banka
V	August 11	Nicholas	
V	August 26		Banka
VI	July 6	Campbell	
VI	July 17	Nicholas	
VI	July 30		Banka/Worden
VI	August 8	Nicholas	
VI	August 27	Nicholas	
VII	October 20	Nicholas	
VII	October 21	Nicholas	
VII	November 12		Olsen
VII	November 11	Nicholas	
VIII	September 18	Nicholas	
VIII	October 19		Banka
VIII	October 25	Nicholas	
VIII	November 13	Nicholas	
IX	July 4	Nicholas	Banka
IX	September 2	Nicholas	
IX	September 3		Banka
Number of Survey Days		28	18

TABLE 3. SUMMARY OF ANGLER CENSUS AT LAKE DAVIS, 2001 (DFG & DWR)

Type of Angler	Anglers Interviewed	Hours Fished	Rainbow Trout Kept	Brown Trout Kept	Kept Trout Catch/Hr	RT & BN Trout C&R	All trout Catch/Hr
Boat Anglers (DFG)	452	2,112.75	444	0	0.21	266	0.34
Boat Anglers (DWR)	192	730.00	165	4	0.23	91	0.36
Boat Anglers (Combined)	644	2,842.75	609	4	0.22	357	0.34
Shore Anglers (DFG)	627	1,894.00	304	1	0.16	66	0.20
Shore Anglers (DWR)	401	1,155.00	223	0	0.19	59	0.24
Shore Anglers (Combined)	1,028	3,049.00	527	1	0.17	125	0.21
Float Tube Anglers (DFG)	2	7.75	0	0	0.00	12	1.55
Float Tube Anglers (DWR)	0	0.00	0	0	0.00	0	0.00
Float Tube Anglers (Combined)	2	7.75	0	0	0.00	12	1.55
All Anglers (DFG)	1,081	4,014.50	748	1	0.19	344	0.27
All Anglers (DWR)	593	1,885.00	388	4	0.21	150	0.29
All Anglers (Combined)	1,674	5,899.50	1,136	5	0.19	494	0.28

TABLE 4. CATCH OF TROUT BY BOAT ANGLERS AT LAKE DAVIS BY FISHING LOCATION, 2001 (DFG Data)

Location	Anglers Interviewed	Hours Fished	Rainbow Trout Kept	Brown Trout Kept	Kept Trout Catch/Hr	RT & BN Trout C&R	All Trout Catch/Hr
Mallard Cove	45	182.00	24	0	0.13	50	0.41
Lightning Tree/Long Pt.	10	49.25	9	0	0.18	11	0.41
Camp 5	5	28.75	10	0	0.35	0	0.35
Honker Cove	385	1,820.50	401	0	0.22	202	0.33
Coot Bay	1	3.00	0	0	0.00	0	0.00
Not Recorded	6	29.25	0	0	0.00	3	0.10
Totals	452	2,112.75	444	0	0.21	266	0.34

TABLE 5. CATCH OF TROUT BY SHORE ANGLERS AT LAKE DAVIS BY FISHING LOCATION, 2001 (DFG Data)

Location	Anglers Interviewed	Hours Fished	Rainbow Trout Kept	Brown Trout Kept	Kept Trout Catch/Hr	RT & BN Trout C&R	All Trout Catch/Hr
Eagle Point	16	67.25	18	0	0.27	0	0.27
Fairview Point	19	57.25	14	0	0.24	0	0.24
Mallard Cove	295	944.00	150	0	0.16	50	0.21
Honker Cove	148	411.75	66	0	0.16	7	0.18
Coot Bay	104	256.25	39	1	0.16	4	0.17
Camp 5	29	101.75	11	0	0.11	5	0.16
Miscellaneous 1/	16	55.75	6	0	0.11	0	0.11
Totals	627	1,894.00	304	1	0.16	66	0.20

1/ Lightning Tree, Long Point, Dam, Grizzly Campground, Mosquito Slough, and Location Not Recorded.

censused lived in California and 39 percent were from Nevada (mostly Reno and Sparks). These differences relate to the specific dates surveyed by each agency.

In addition to the Nevada anglers, DWR interviews revealed that nearly 23 percent of the anglers were from the San Francisco Bay counties (Alameda, Contra Costa, Marin, Napa, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma Counties). Most of the other anglers who fished the lake were from the Northeast Counties (13 percent; Plumas, Lassen, Modoc, and Siskiyou Counties) and Sacramento Valley Counties (13 percent; Sierra County and south), with the remaining 12 percent from other regions of California (Figure 1).

The average total length of 386 rainbow trout measured by DFG was 399 mm (15.7 inches) with a range of 228 to 530 mm (9.0 to 20.9 inches) (Figure 2). The total length of one measured brown trout was 490 mm (19.3 inches).

DWR measured the fork length of trout to the nearest 0.5 cm. The mean fork length of 334 rainbow trout was 39.0 cm (15.3 in.), with a range of 27.5 to 58.5 cm (10.8 to 23.0 in.) (Figure 3). None of the brown trout DWR recorded were measured.

DFG data indicated angler success varied among the several surveyed locations around the lake. The highest catch rates for boat anglers were at Mallard Cove, Lightning Tree/Long Point, Camp 5, and Honker Cove. The lowest rate was at Coot Bay (Table 4). The highest catch rates for shore anglers were at Eagle Point, Fairview Point, and Mallard Cove, but variation among fishing access sites was low in 2001 (Table 5).

DWR data revealed about 70 percent of the anglers interviewed used bait, 7 percent lures, 5 percent flies, and 18 percent some combination of these.

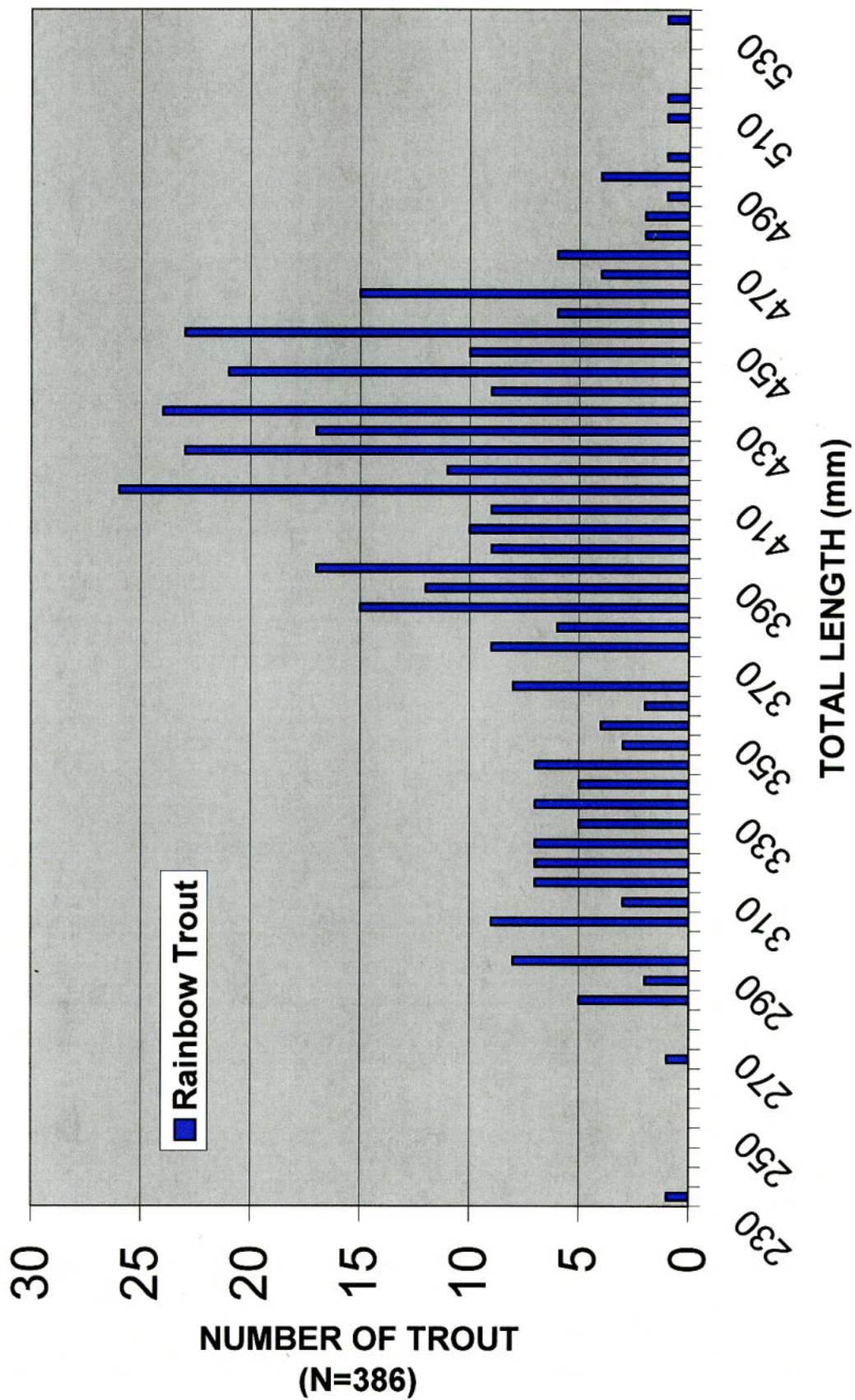
Estimated Angling Use

On each survey day, three times each day, the DFG and DWR census clerks also counted boat trailers, vehicles with cartop boats, other vehicles, and shore anglers (DFG only). DFG surveyed Coot Bay, Honker Cove, Mallard Cove, and Lightning Tree boat ramps. DWR surveyed Camp Five, Honker Cove, Mallard Cove, and Lightning Tree ramps.

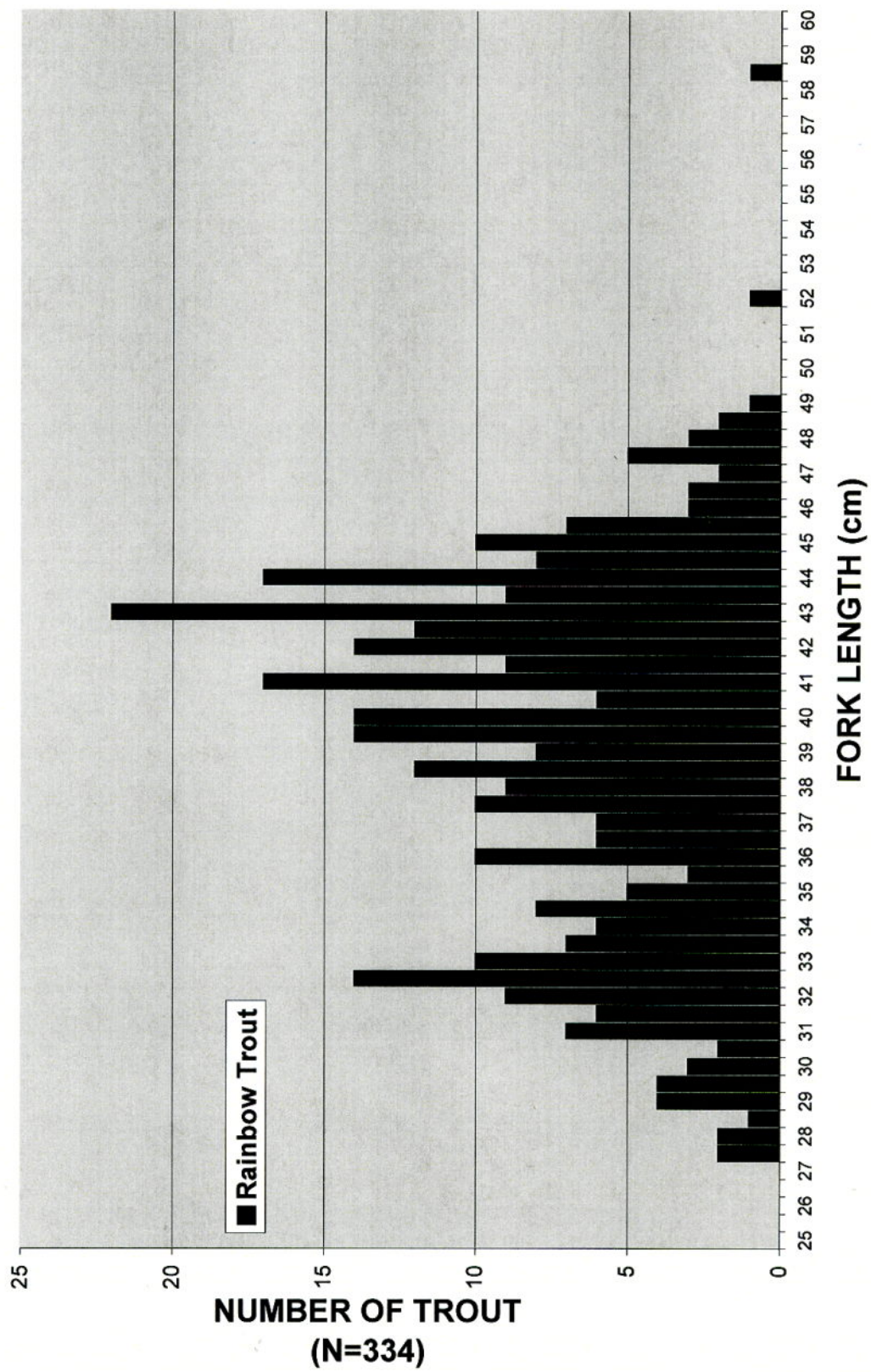
This information was collected to provide estimates of boat and shore fishing and total catch for the 202-day season. The counts made by either agency were adequate to provide approximate estimates of angling use. However, by combining the DFG and DWR data more accurate estimates can be calculated.

As in other years, these data should be considered minimal estimates because some boat trailers and shore anglers were at locations not readily visible to the census clerks. Virtually all boating use at Lake Davis is for fishing, since waterskiing and related boating recreation are not permitted.

FIGURE 2. LENGTH OF RAINBOW TROUT MEASURED BY DFG AT LAKE DAVIS, 2001



**FIGURE 3. LENGTH OF RAINBOW TROUT MEASURED BY DWR
AT LAKE DAVIS, 2001**



DFG data indicated boat fishing totaled 66,000 hours (confidence interval 21,000 hours) with an estimated catch of 19,000 trout (0.29 per hour). Shore fishing totaled 33,000 hours (confidence interval $\pm 5,000$ hours) with an estimated catch of 7,500 trout (0.11 per hour). Based on reports of fish caught and released, anglers also likely released approximately 8,400 additional trout (Table 6).

DWR data indicated that boat fishing totaled about 104,000 hours (confidence interval 15,000 hours) with an estimated catch of 35,000 trout (0.34 trout per hour). Anglers reported they caught and released about 15,000 trout. DWR did not count shore anglers in 2001, so no estimate of shore fishing use could be made.

However, the angler use count and creel census data collected by both agencies can be combined to produce slightly more accurate estimates of boat and shore fishing use and catch. The combined data produce an estimate of about 94,000 hours of boat fishing (confidence interval 14,000 hours) with an estimated catch of 30,000 trout (0.32 trout per hour). Shore anglers totaled 33,000 hours from the DFG use counts, but the combined catch data produces an estimated catch of 7,000 trout (0.21 trout per hour).

Surprisingly, the 15 additional days of survey data do not greatly increase the accuracy of the estimates. Primarily, this opportunity to combine data suggests that about 28-30 survey days are sufficient and supports the idea that all different periods of the season should be sampled. It is obvious that variability in the data has at least as much to do with the accuracy of the results as the number of days sampled.

Over 76 percent of the vehicles DFG observed were at Honker Cove boat ramp in 2001 (Table 7). Another 18 percent of the vehicles were at Mallard Cove. About 90 percent of the boats were trailered and 10 percent were "cartop" boats (Table 8). As in 2000, just over 65 percent of the vehicle license plates were from California, with just under 35 percent from Nevada.

In comparison, about 73 percent of the vehicles DWR observed were at Honker Cove boat ramp. DWR recorded many fewer vehicles at Mallard Cove because DWR counted only those vehicles associated with boats, while DFG counted vehicles associated with shore anglers and other recreationists, as well as boats. About 88 percent of the boats were trailered and 12 percent cartop. About 65 percent of the vehicle license plates were from California and 35 percent were from Nevada.

During 2001, DFG planted 53,300 catchable-sized Eagle Lake rainbow trout in Lake Davis (Table 9).

If you have any questions or need additional information, you may contact me at (530) 529-7393 or at hintonr@water.ca.gov.



Ralph N. Hinton
Retired Annuitant

TABLE 6. ESTIMATED TOTAL ANGLER USE AND TROUT CAUGHT AT LAKE DAVIS, 2001 (DFG & DWR)

Type of Angler	Estimated Angler-Hrs	95 percent Confidence Interval	Est. Trout Caught	Catch per Angler-Hour	Estimated Trout C&R	All Trout Catch/Hr
Boat Anglers (DFG data) 1/	66,000	46,000 - 87,000 (+31%)	19,000	0.29	7,600	0.40
Boat Anglers (DWR data)	104,000	89,000 - 119,000 (+14%)	35,000	0.34	15,000	0.48
Boat Anglers (Combined data)	94,000	80,000 - 107,000 (+15%)	30,000	0.32	13,000	0.46
Shore Anglers (DFG data)	33,000	28,000 - 39,000 (+16%)	7,500	0.23	800	0.25
Shore Anglers (DWR data)	DWR did not estimate shore anglers in 2001, but did collect creel census data					
Shore Anglers (Combined data)	33,000	28,000 - 39,000 (+16%)	7,000	0.21	1,500	0.26
All Anglers (DFG data)	99,000	101,000 - 152,000 (+26%)	26,500	0.27	8,400	0.35
All Anglers (DWR data)	DWR did not estimate shore anglers in 2001, but did collect creel census data					
All Anglers (Combined data)	127,000	101,000 - 137,000 (+15%)	37,000	0.29	14,500	0.41
1/ Two Float Tube Anglers included with Boat Anglers.						

TABLE 7. BOAT RAMP USE AT LAKE DAVIS, 2001

Ramp	DFG Percent	DWR Percent
Honker Cove	76%	73%
Mallard Cove	18%	3%
Coot Bay	4%	NR
Lightning Tree	2%	2%
Camp 5	NR	23%
Total	100%	100%

TABLE 8. TYPE OF BOATS AT LAKE DAVIS, 2001

Type	DFG Percent	DWR Percent
Trailered Boats	90%	88%
Cartop Boats	10%	12%
Total	100%	100%

TABLE 9. TROUT PLANTING SUMMARY FOR LAKE DAVIS, 2001 (DFG Data)

Species	Date	Number	Pounds	Number/lb.
Eagle Lake Rainbow	05/07/01	9,000	4,500	2.0
Eagle Lake Rainbow	05/22/01	7,200	4,000	1.8
Eagle Lake Rainbow	05/29/01	9,350	4,250	2.2
Eagle Lake Rainbow	05/29/01	4,400	2,000	2.2
Eagle Lake Rainbow	05/30/01	9,350	4,250	2.2
Eagle Lake Rainbow	05/30/01	4,400	2,000	2.2
Eagle Lake Rainbow	06/12/01	9,600	4,000	2.4
Totals		53,300	25,000	2.1